

ABSTRACT OF THE DISCLOSURE

A surface-emission laser diode includes a distributed Bragg reflector tuned to wavelength of  $1.1\mu\text{m}$  or longer, wherein the distributed Bragg reflector includes an alternate repetition of a low-refractive index layer and a high-refractive index layer, with a heterospike buffer layer having an intermediate refractive index interposed therebetween with a thickness in the range of 5 - 50nm.